

# TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS

## PCT

### RAPPORT PRÉLIMINAIRE INTERNATIONAL SUR LA BREVETABILITÉ (chapitre I du Traité de coopération en matière de brevets)

(règle 44bis du PCT)

Référence du dossier du déposant ou du mandataire WOB03CNR CYCL	<b>POUR SUITE À DONNER</b> Voir le point 4 ci-dessous	
Demande internationale no. PCT/FR2004/000691	Date du dépôt international ( <i>jour/mois/année</i> ) 22 March 2004 (22.03.2004)	Date de priorité ( <i>jour/mois/année</i> ) 28 March 2003 (28.03.2003)
Classification internationale des brevets (8 <sup>e</sup> édition, sauf indication d'une #dition ant#rieure) Voir les informations pertinentes dans le formulaire PCT/ISA/237		
Déposant CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE		

1. Le présent rapport préliminaire international sur la brevetabilité (chapitre I) est établi par le Bureau international au nom de l'administration chargée de la recherche internationale selon la règle 44bis.1.a).

2. Ce RAPPORT comprend un total de 6 feuilles, y compris la présente feuille de couverture.

Dans les feuilles jointes, toute référence à l'opinion écrite de l'administration chargée de la recherche internationale doit être entendue, à la place, comme une référence au rapport préliminaire international sur la brevetabilité (chapitre I).

3. Le présent rapport contient des indications relatives aux points suivants :

- |                                     |               |                                                                                                                                                                                             |
|-------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Cadre n° I    | Base de l'opinion                                                                                                                                                                           |
| <input checked="" type="checkbox"/> | Cadre n° II   | Priorité                                                                                                                                                                                    |
| <input type="checkbox"/>            | Cadre n° III  | Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle                                                                    |
| <input type="checkbox"/>            | Cadre n° IV   | Absence d'unité de l'invention                                                                                                                                                              |
| <input checked="" type="checkbox"/> | Cadre n° V    | Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration |
| <input type="checkbox"/>            | Cadre n° VI   | Certains documents cités                                                                                                                                                                    |
| <input type="checkbox"/>            | Cadre n° VII  | Certaines irrégularités relevées dans la demande internationale                                                                                                                             |
| <input type="checkbox"/>            | Cadre n° VIII | Certaines observations relatives à la demande internationale                                                                                                                                |

4. Le Bureau international communiquera le présent rapport aux offices désignés conformément aux règles 44bis.3.c) et 93bis.1 mais pas avant l'expiration du délai de 30 mois à compter de la date de priorité (règle 44bis.2), sauf si le déposant a présenté une requête expresse à cet égard en vertu de l'article 23.2).

Bureau international de l'OMPI 34, chemin des Colombettes 1211 Geneva 20, Switzerland no de télécopieur +41 22 740 14 35	Date d'établissement du présent rapport 21 February 2006 (21.02.2006)
	Fonctionnaire autorisé  Athina Nickitas-Etienne no de téléphone : +41 22 338 89 95

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

**Translation**

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference

**WOB03CNRCYCL**

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

**PCT/FR2004/000691**

International filing date (day/month/year)

**22.03.2004**

Priority date (day/month/year)

**28.03.2003**

International Patent Classification (IPC) or both national classification and IPC

Applicant

**CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE**

1. This opinion contains indications relating to the following items:

- |                                     |              |                                                                                                                                                                      |
|-------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion                                                                                                                                                 |
| <input checked="" type="checkbox"/> | Box No. II   | Priority                                                                                                                                                             |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability                                                                     |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention                                                                                                                                           |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited                                                                                                                                              |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application                                                                                                                     |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application                                                                                                                |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA EP

Authorized officer

Facsimile No.

Telephone No.

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Box No. I      Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

\_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☐

in written format

☐

in computer readable form

c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. II

Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date in the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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PCT/FR2004/000691

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-29	YES
	Claims	NO
Inventive step (IS)	Claims	YES
	Claims 1-29	NO
Industrial applicability (IA)	Claims 1-29	YES
	Claims	NO

2. Citations and explanations:

1 In the present notification reference is made to the following documents:

- ✓ D1 : NAGATA Y. *et al.*: "pH-Responsive Guest Binding of Polypeptide Containing a Cyclodextrin at the Terminal" BULL. CHEM. SOC. JPN, vol. 67, 1994, pages 495-499, XP0001161 089
- ✓ D2: NOBUYOSHI AOKI *et al.*: "Gas chromatographic-mass spectrometry study of reactions of halodeoxycelluloses with thiols in aqueous solutions" CARBOHYDRATE POLYMERS, vol. 27, 1995, pages 13-21, XP004034456 GREAT BRITAIN
- ✓ D3: WO 97/33919 A (ORTIZ MELLET CARMEN; GARCIA FERNANDEZ JOSE MANUEL (ES); DEFAYE JACQUE) 18 September 1997
- ✓ D4: JUAN J. GARCIA-LOPEZ *ET AL.*: "Synthesis of cluster N-Glycosides based on a beta-cyclodextrin core" CHEM. EUR. JOURNAL, vol. 5, no. 6, 1999, pages 1775-1784, XP000828759 WEINHEIM
- D5: WO-A-9519994 (ATOMIC ENERGY COMMISSION)

2 Document D1 describes mono-6-deoxy-6-(2-aminoethylthio)- $\beta$ -cyclodextrine, the reaction with polypeptides (see page 496, diagram 1) and the formation of inclusion complexes (see page 498, right column, second paragraph). The cyclodextrin derivative is prepared by a reaction of CxD-Tos with 2-aminoethanethiol.

Document D2 describes the use of a process comprising a reaction step of a halogen compound in a primary alcohol position (i.e. in C6 position) as, for example, deoxycellulose with a thiolated compound to introduce a thioether type bond with a good yield (see page 15, left column, 2<sup>nd</sup> paragraphe). The amino group of the 2-aminoethanethiol does not react (see page 19, right column).

Document D3 has for subject matter thioureido-cyclodextrines to solubilize in aqueous environment anti-tumour agents, particularly those of the Taxol family.

The derivatives contain a thio-urea type bond or spacer to connect the cyclodextrine to a hydrophilic figure like a glucidic derivative such as, for example, monosaccharides or oligosaccharides like tri- or tetrasacchariads of the Lewis X or Sialyl Lewis X type.

The presence of this group allows giving to the cyclodextrine an affinity for certain biological sites since this group can play a role of external molecular and cellular recognition marking.

Document D4 describes derivatives of cyclodextrine with multiple ramifications and presents an affinity vis-à-vis of lectines. The property of forming inclusion complexes with cyclodextrines and the development of systems for medicine vehicles is generally known by a person skilled in the art (see page 1775, left column).

Document D5 concerns a solubilization process in an aqueous environment of anti-tumour agents of the taxol family and of cyclodextrines rendered usable by this solubilization and includes a maltosyl group attached to the cyclodextrine by a thioether bond.

3. The subject matter of the claims is new, and meets the requirements for novelty defined by PCT Article 33(2) since no

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

document discloses compounds corresponding to the general formula (I) of claim 6.

4 INDEPENDENT CLAIMS 1, 2, 5, 6, 25 and 27

The present application fails to meet the requirements of PCT Article 33(1), the subject matter of the claims not involving an inventive step as defined by PCT Article 33(3).

Contrary to the description, page 3, lines 4 to 7, there exist today derivatives of cyclodextrine enabling the increase of the solubilization of pharmacologically active substances and providing an affinity vis-à-vis lectines. Documents D3, D4 and D5 are examples of this existence.

Document D4, which is considered as being the prior art closest to the subject matter of claim 6, describes compounds that are only different from the spacer group. The technical feature, particularly introducing a thioether type bond is only one possibility that a person skilled in the art could chose, according to the case, among multiple obvious possibilities, to resolve the problem without an inventive step being involved. Document D2 describes compounds very close to cyclodextrine and cellulose, belonging to the same technical field and which are chemically very similar. A person skilled in the art could find in document D2, together with document D1, an instruction that would lead him to replace the spacer group to thereby obtain the subject matter covered by the terms of the claims.

5 DEPENDENT CLAIMS 3, 4, 7-24, 26, 28, 29

The claims do not appear to contain any features which, in combination with the features of any one claim of the claims to which they refer, meet the requirements of the PCT in respect of novelty and inventive step PCT Article 33(2) and (3)).